

REMARKS

Claim 1 has been amended to incorporate the recitations of claims 2, 3, and 14 therein, and claims 2-4 and 14 have been canceled accordingly. Claim 7 has been amended to depend only on claim 1, and claim 15 has been added corresponding to claim 7 except for depending on allowed claims 5 and 6.

Since all of the recitations in the claims have been considered by the Examiner previously, entry of the above amendments is respectfully requested.

Art Rejections

On page 2 of the Office Action, in paragraph 2, claims 1, 3, 7 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nakajima et al. (JP 2000-133262, abstract). Also, on page 3 of the Office Action, in paragraph 3, claims 2, 4 and 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima et al. (JP 2000-133262, abstract) in view of Inoue et al. (5,707,756).

Applicants respectfully submit that the present invention is neither anticipated by nor obvious over the cited art, and request that the Examiner reconsider and withdraw these rejections in view of the following remarks.

(1) On page 2 of the Office Action, in line 8 of paragraph 2, the Examiner states that "Nakajima et al. teaches in Table 1, Comparative Example 6, that it is known to have a positive active material of $\text{Li}_a\text{Ni}_{0.600}\text{Co}_{0.200}\text{Mn}_{0.200}\text{O}_2$ which gives an $R=0.388$ which meet the limitation of not greater than 0.50."

However, Applicants submit that the Examiner is misinterpreting the disclosure of Nakajima et al. The ratio 0.600:0.200:0.200 is the mixing ratio (molar ratio) of the raw materials, $\text{Ni}(\text{OH})_2$, Co_3O_4 and $\gamma\text{-MnOOH}$. Accordingly, a composite oxide synthesized from a mixture of the raw materials mixed together in that ratio is not always $\text{Li}_2\text{Ni}_{0.600}\text{Co}_{0.200}\text{Mn}_{0.200}\text{O}_2$. Therefore, Applicants submit that it is not proper to rely upon Comparative Example 6 of Nakajima et al. to reject the present invention.

(2) Applicants have restricted the range of R in claim 1 to not less than 0.422 and not greater than 0.50. Accordingly, Comparative Example 6 of Nakajima et al. does not fall within the scope of claim 1.

(3) On page 3 of the Office Action, in the second paragraph on that page, the Examiner asserts that the range of R as claimed and that of the prior art are similar to each other.

However, Applicants direct the Examiner's attention to a comparison of Example 11 with Comparative Example 1 in the present specification. A change of R from 0.511 to 0.493 requires a change of 100°C in calcining temperature. No such change is made unless an artisan who is going to synthesize an active material has some particular intention.

As is apparent from the present specification, an R value of 0.493 (Example 11) falling within the claimed range brings about a sharp increase in capacity. If Nakajima et al. had obtained an active material having an R value of 0.50 or less, they would not have failed to recognize a sharp increase in capacity as a result of their capacity retention test. The disclosure of Nakajima et al. does not, however, contain any statement suggesting their recognition of a

sharp increase in capacity. Under these circumstances, one must conclude that Nakajima et al. did not obtain any positive active material having an R value below 0.50.

(4) The invention of claim 1 as amended is characterized by the specific ranges of (i) values for a, b and c in the compositional formula, (ii) intensity ratio R, (iii) mean particle diameter D_{50} and (iv) BET specific surface area.

In view of this, Applicants would like to explain below why the present invention would not have been obvious.

There are a great many parameters that can be used for defining a positive active material. Accordingly, even if Inoue et al. may disclose the particle diameter and a BET specific surface area, and if Nakajima et al. may disclose the parameter R, nobody of routine skill in the art would have good reason to choose those parameters, among others, and arrive at the present invention.

Moreover, only the combination of these parameters as set forth in the present claim 1 produces unexpected results (a high capacity density and a high discharge capacity retention), as shown in Table 1 and Figs. 3 and 4. Nakajima et al. and Inoue et al. disclose general parameters alone, and cannot be considered to have been aware of the fact that the positive active material of the composition defined by claim 1 as amended would give the peak values.

Thus, Applicants strongly believe that the invention of claim 1 is not obvious.

(5) Claims 7 to 13 are dependent from claim 1, and thus are allowable, since claim 1 is allowable as set forth in points (1) to (4) above.

Accordingly, Applicants submit that the present invention is neither anticipated by nor obvious over the cited art, and withdrawal of these rejections is respectfully requested.

Rejection under 35 U.S.C. 112, First Paragraph

On page 5 of the Office Action, in paragraph 4, claim 14 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for R to be not less than 0.422, does not reasonably provide enablement for an infinite top range.

In response, Applicants note initially that claim 14 has been canceled. However, it is submitted that a top end of the range can be found in claim 1, which recites that R is not greater than 0.50.

Thus, Applicants submit that the rejection has been overcome, and withdrawal of the rejection is respectfully requested.

Allowable Subject Matter

On page 5 of the Office Action, in paragraph 5, the Examiner indicates that claims 5-6 are allowed.

Applicants thank the Examiner for indicating that claims 5-6 are allowed. Applicants note that new claim 15 depends on claim 5 or claim 6, and thus should be allowed as well. Further, based on the above remarks, Applicants submit that the other pending claims should also be allowed, and thus allowance of all the claims is respectfully requested.

AMENDMENT UNDER 37 C.F.R. § 1.116
U.S. Application No. 09/986,431

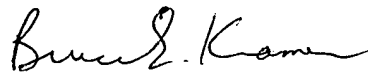
Attorney Docket No. Q67192

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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